

**Notice of Allowability**

Application No.

10/659,192

Examiner

Ling-Siu Choi

Applicant(s)

GINDELBERGER, DAVID E.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed 07/08/2005.
2. ☒ The allowed claim(s) is/are 1-27.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

**DETAILED ACTION**

1. This Office Action is in response to the Amendment and the Terminal Disclaimer, both being filed July 8, 2005.

***Examiner's Amendment***

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CAR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

3. The application has been amended as follows:

In **Statement of related Applications**, line 2, change "2003" to --2003, now issued as U.S. 6,797,791--;

Claim 22, lines 3-4, change "trisperfluorophenyl borane metalloid precursor" to --trisperfluorophenyl boron metalloid precursor--.

***Allowable Subject Matter***

4. Claims 1-27 are allowed.

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5. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Nagy et al. (WO 97/45459), Kataoka et al. (US 6,228,791), Ito et al. (US 4,105,847), Karol et al. (US 5,034,366), and Fourcade et al. (US 3,058,972).

A method to prepare a polymerization catalyst comprising	
A	a bulky-ligand metallocene or Group 15 containing polymerization catalyst
B	an alternating Group 14 and Group 16 atom containing oil or amorphous solid: $T-M(R^1)_2-Q-[M(R^2)_2-Q]_n-M(R^1)_2-T$ or $T-M(R^1)_2-Q-[M(R^2)_2-Q]_n-[M(R^3)_2-Q]_m-M(R^1)_2-T$

(summary of claim 1)

A polymerization catalyst comprising	
A	a bulky-ligand metallocene or Group 15 containing polymerization catalyst
B	an alternating Group 14 and Group 16 atom containing oil or amorphous solid: $T-M(R^1)_2-Q-[M(R^2)_2-Q]_n-M(R^1)_2-T$ or $T-M(R^1)_2-Q-[M(R^2)_2-Q]_n-[M(R^3)_2-Q]_m-M(R^1)_2-T$

(summary of claim 12)

Nagy et al. disclose a polymerization catalyst obtained by the contact of (A) a polymeric oil of the formula of  $R^{12}-[SiRR^{16}-O]_n-SiRR^{16}R^{12}$  with R being aliphatic or cycloaliphatic radical, aryl radical, or aralkyl or alkaryl radical;  $R^{12}$  or  $R^{16}$  being H or R and (B) a compound having the formula of  $M^pL^4_rX'_{p-r}$  with M being a metal selected from Groups 3-10 of the Periodic Table or lanthanides and  $L^4$  being a monoanionic aromatic ancillary ligand  $\pi$ -bonded to

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M, which can be a cyclopentadienyl or substituted cyclopentadienyl ring (page 4, line 15; page 21, lines 1-10; claims 35-36). Nagy et al. further disclose that the silicon oil has a number of repeating units, wherein the number of repeating units are preferably 10 to 100 because smaller polysiloxane oils are too volatile and larger polysiloxane oils are more difficult to react and have poorer solubility and wherein the silicon oils have viscosity at 25°C between 1 to 1,000 cSt (page 21, lines 8-10 and 14). However, Nagy et al. do not teach or fairly suggest a catalyst comprising a **bulky-ligand metallocene or Group 15 containing polymerization catalyst** and the specific alternating Group 14 and Group 15 containing oil or amorphous solid.

Kataoka et al. disclose a process to prepare a catalyst comprising combining (A) the contact product of (a) an alkoxy magnesium compound, (b) a tetravalent halogen-containing titanium compound, (c) a diester of an aromatic dicarboxylic acid, (d) an aromatic hydrocarbon, and (e) at least one aluminum compound and (B) a polysiloxane represented in the general formula of  $R^{13}R^{14}R^{15}Si-O-(SiR^{16}R^{17}-O)_{\alpha}-SiR^{18}R^{19}R^{20}$  with  $R^{13}-R^{20}$  each being a methyl group or a phenyl group and  $\alpha$  being from 2 to 30,000 (claims 1 and 13). Kataoka et al. further disclose that the polysiloxane has a viscosity of from 2 to 10,000cSt at 25°C (col. 8, lines 4-8). However, Kataoka et al. do not teach or fairly suggest a catalyst comprising a **bulky-ligand metallocene or Group 15 containing polymerization catalyst** and the specific alternating Group 14 and Group 15 containing oil or amorphous solid.

Ito et al. disclose a process to prepare a catalyst comprising combining (A) a co-comminuted composition of (a) a titanium compound, (b) a magnesium halide, and (c) a siloxane polymer and (B) an organoaluminum compound, wherein the siloxane polymer can be  $-O-SiRR-O-SiRR-$  with R being  $C_{1-15}$  alkyl or  $C_{6-15}$  aryl (claim 1). Ito et al. further disclose that

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the siloxane polymer has a viscosity of several centistokes to 1,000,000 centistokes at 25°C (col. 4, lines 23-24). However, Ito et al. do not teach or fairly suggest a catalyst comprising a **bulky-ligand metallocene or Group 15 containing polymerization catalyst** and the specific alternating Group 14 and Group 15 containing oil or amorphous solid.

Karol et al. disclose a process to prepare a catalyst comprising combining (1) a solid, particulate, porous inorganic carrier, (2) the reaction product of (a) a vanadium trihalide and (b) an electron donor, (3) a boron halide or alkylaluminum modifier, and (4) a polysiloxane oil activity regulator having the formula of  $R^3_3Si-O(SiR^1R^2-O)-SiR^3_3$  with  $R^1-R^3$  being monovalent hydrocarbon radical (claim 1). However, Karol et al. do not teach or fairly suggest a catalyst comprising a **bulky-ligand metallocene or Group 15 containing polymerization catalyst** and the specific alternating Group 14 and Group 15 containing oil or amorphous solid.

Fourcade et al. disclose a process to prepare a catalyst comprising combining titanium tetrachloride, silicone oil, and aluminum chlorodiethyl, wherein the silicon oil has the general formula of  $-O-SiRR-O-SiRR-O-SiRR-O-SiRR-O-$  with R being alkyl or aryl and a viscosity of 1.0 poise (Example 1; claim 1). However, Fourcade et al. do not teach or fairly suggest a catalyst comprising a **bulky-ligand metallocene or Group 15 containing polymerization catalyst** and the specific alternating Group 14 and Group 15 containing oil or amorphous solid.

### *Conclusion*

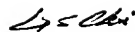
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-232-1098.

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If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor,  
David Wu, can be reach on 571-272-1114.



**LING-SUI CHOI**  
**PRIMARY EXAMINER**

September 13, 2005